

# INTEGRATED CIRCUIT DEVICES HAVING DIELECTRIC REGIONS PROTECTED WITH MULTI-LAYER INSULATION STRUCTURES AND METHODS OF FABRICATING SAME

## Abstract of the Disclosure

5 A dielectric region, such as a ferroelectric dielectric region of an integrated  
 circuit capacitor, is protected by a multi-layer insulation structure including a first  
 relatively thin insulation layer, e.g., an aluminum oxide or other metal oxide layer,  
 and a second, thicker insulating layer, e.g., a second aluminum oxide or other metal  
 10 oxide layer. Before formation of the second insulation layer, the first insulation layer  
 and the dielectric preferably annealed, which can increase a remnant polarization of  
 the dielectric region. The first insulation layer can serve as a hydrogen diffusion  
 barrier during formation of the second insulation layer and other overlying structures.  
 In this manner, degradation of the dielectric can be reduced. Devices and fabrication  
 15 methods are discussed.

09923670-080701